ART[®] vPush

Pushing the boundaries of deepwater hydrate detection capability

CASE STUDY

TSC Subsea's ART® vPush, an industry first in acoustic deepwater hydrate detection, delivering rapid inspection without compromising detection capability or sizing accuracy, successfully completed a project for a major operator off Angola, West Africa.

The ART vPush was designed and developed by TSC Subsea's UK team, working closely with the company's acoustic scientists based in Norway, to meet the specific needs of the operator for this project. They required an external pipeline medium inspection, through coating, on a water injection pipeline to detect the location and size of a hydrate plug.

The ART vPush, which uses TSC Subsea's Acoustic Resonance Technology (ART®) on a moving platform to rapidly assess pipeline contents, was deployed by ROV to carry out the inspection along the length of the pipeline.

The inspection was conducted from the top of the pipe utilising four transducers incorporated into the vPush system. The transducers worked simultaneously to provide full coverage of the internal volume without requiring excessive dredging. Sensors located between 10 and 2 o'clock examined signals from the far wall, providing 360 coverage without having to access the underside of the pipe

The tool scanned 12km of 8" 3LPP coated water injection line in just 33 hours at -1,300m water depth. Data was collected in real time and processed with several algorithms to monitor the signals from the far wall of the pipe to detect the presence of the hydrate plug. Once found, the hydrate plug was scanned for exact measurements.



Fig A: Art® vPush pipe inspection

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In addition to benefiting from the most efficient and fastest hydrate detection and sizing tool on the market, the operator also achieved additional cost savings in terms of dredging requirements as the smart design of the ART vPush means that only minimal dredging is required of the upper section of the pipe. The high-speed data collection also delivers additional cost savings by minimising ROV and vessel time.

TSC Subsea collaborated with DOF Subsea Norway AS to complete the project for the client.

Typically deployed via ROV manipulator, ART vPush can also be fitted directly onto an ROV and has a depth rating of 3,000 metres. Common applications include detection of, or screening for, hydrates in subsea pipelines and wall thickness measurements on subsea pipeline.



Figure B, Art® vPush on deck

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